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Relationship of Role Stress, Technostress, and Performance at High School Teacher in West Jakarta

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ABSTRACT

In the context of modern education, teachers are expected to master a range of competencies, including the effective use of technology, which can contribute to stress. This study aims to explore the relationships among role stress, technostress, and work performance among senior high school teachers in West Jakarta. To achieve this, the research utilized three measurement tools: the Technostress Scale, the Teacher Role Stressors Survey, and the Individual Work Performance Questionnaire. Data were gathered from 168 teachers across 11 senior high schools in West Jakarta during the period from October 21, 2022, to November 8, 2022. The analysis was performed using IBM SPSS 26, employing both Pearson and Spearman correlation methods. The findings indicate that technostress is significantly related to role stress, and work performance is also significantly related to role stress. However, the study revealed that technostress does not have a significant correlation with work performance. These results highlight the impact of role stress on teachers' experiences and performance, while suggesting that technostress does not directly affect their work performance. Understanding these relationships can inform strategies to alleviate stress and enhance teacher effectiveness.

1.   INTRODUCTION

According to UU No. 14 Tahun 2005, teachers are considered professionals with responsibilities that extend beyond mere instruction. Their roles encompass teaching, educating, coaching, assessing, and evaluating students. Effective teaching involves more than just delivering information; it requires guiding and facilitating the learning process (Darmadi, 2015; Zein, 2016). Teaching is regarded as a specialized profession, defined by a set of competencies required for performing these tasks effectively. In Indonesia, these competencies are outlined in 'Peraturan Menteri Pendidikan Nasional Republik Indonesia No 16 Tahun 2007 tentang Standar Kualifikasi Akademik dan Kompetensi Guru', which identifies four core areas: pedagogical, personal, social, and professional competencies. Each competency is detailed with specific behaviors, actions, and attitudes that educators must exhibit (Adrian & Agustina, 2019).

Teachers often experience stress due to various demands (Gaol, 2021). Four primary sources of stress are identified: (a) school organization, school culture, and principal leadership; (b) high job demands; (c) relationships with colleagues, job control, and involvement in decision-making; and (d) socio-emotional skills and classroom management (Pennsylvania State University, 2016). The research from Pennsylvania State University (2016) indicates that 46% of teachers report high levels of stress, a finding that aligns with von der Embse et al. (2019), who also highlight elevated stress levels among educators.

Stress manifests as both physiological and psychological responses to stressors, which can arise from various internal or external conditions (APA, n.d.). Role conflict, where individuals must juggle multiple roles, contributes significantly to work-related stress (King, 2020). This role conflict is a component of broader role stress (Pecino et al., 2019).

Previous studies have shown that role stress impacts both technostress and work performance (Pullins et al., 2020; Wu et al., 2019), with technostress also influencing work performance (Li & Wang, 2020). However, Akgunduz (2015) found that while role conflict and role ambiguity affect work performance, Wu et al. (2019) observed that role conflict does not have a significant impact. This highlights ongoing inconsistencies in research regarding the relationship between role stress and work performance.

This study aims to investigate the interplay between role stress, technostress, and work performance among high school teachers in West Jakarta. The need for this research is underscored by the findings of Persatuan Guru Republik Indonesia (PGRI), which highlight Indonesia's educational challenges. According to the Best Educational Systems 2021 report, Indonesia ranks 54th out of 78 countries, reflecting a need for improvement in educational quality (Kartika, 2021; Yulianingsih, 2022). Additionally, despite the growing use of technology, Kementerian Pendidikan dan Kebudayaan Republik Indonesia (Kemendikbud) reports that 60% of Indonesian teachers lack adequate proficiency in information and communication technology (Makdori, 2021). To address these issues, this study involved 168 teachers from West Jakarta and analyzed the data using IBM SPSS 26.

2. LITERATURE REVIEW

Work performance is defined in various ways, reflecting different perspectives on what constitutes effective job behavior. One influential definition comes from Campbell (1990, as cited in Koopmans et al., 2011), who describes work performance as behaviors or actions that contribute directly to the goals and objectives of an organization. According to Campbell, work performance encompasses those actions and behaviors that align with and advance the organization's purpose, thereby impacting its overall effectiveness and success. This definition highlights the importance of focusing on activities that are instrumental in achieving organizational aims, rather than merely assessing outcomes or results. The behavior could be evaluated, either positively or negatively for individual or organizational effectiveness (Motowidlo et al., 1997). Performance is defined as a result, action, or behavior that could be assessed and involve workers to contribute with the goals of their organization (Viswesvaran & Ones, 2000).

Koopmans et al. (2014) divide work performance into four dimensions which are task performance, contextual performance, adaptive performance, and counterproductive work behavior. Task performance is an individual's ability to do the core of their job task that needs their technical core (Borman & Motowidlo, 1997). Contextual performance is an individual behavior that could help the environment either social, psychological, or organizational that needs the ability of a technical individual (Borman & Motowidlo, 1997; Conway, 1997; Wu et al., 2019). Adaptive performance included the ability of an individual to adapt with the change work system or their role at work. Counterproductive work behavior is defined as a behavior that gives the disadvantage of an organization well-being characterized by absence, late for work, doing an activity outside of job task, stealing, and usage of drugs (Koopmans et al., 2011).

Technostress, according to the pioneer Brod (1984, cited in La Torre et al., 2019) is defined as an incapability individual to adapt or resolve the usage of information and communication technology in a healthy way. Technostress refers to the stress experienced by individuals as a result of their interactions with information and communication technology. This phenomenon

arises from the challenges associated with keeping up with technological advancements and the demands these technologies place on users' physical, social, and cognitive responses (Ragu-Nathan et al., 2008). Technostress occurs when individuals struggle to adapt to new technologies, leading to increased stress due to their inability to effectively manage or utilize these technological tools (Tarafdar et al., 2014). This form of stress reflects the difficulties and pressures that come with rapid technological changes and the constant need to adjust to evolving digital environments.

Ragu-Nathan et al. (2008) classifies technostress into five dimensions, techno-overload, techno insecurity, techno-uncertainty, techno-invasion, and techno-complexity. Techno-overload is a situation that forces the technology user to work faster and longer and makes individuals take another additional task, multitasking, and face the task interruption of technology usage (Gaudioso et al., 2017; Pflugner et al., 2020). Techno-insecurity is described as the fear or anxiety that technology users experience regarding the potential loss of their jobs due to technological automation or the presence of individuals with superior technological skills. This form of insecurity arises from concerns that advancements in technology may render one's skills obsolete or reduce their job security (Tarafdar et al., 2014). Techno-uncertainty refers to the heightened anxiety that technology users experience as a result of rapid technological changes. This uncertainty drives individuals to continuously learn and adapt to new technologies, as they struggle to keep up with frequent updates and innovations, which increases their stress levels related to technology (Tarafdar et al., 2014). Techno-invasion occurs when technology blurs the boundaries between personal life and work, leading to a sense of intrusion. This form of stress arises when technology users feel that their personal time and space are being encroached upon by work-related demands, thus increasing job demands and creating conflicts between work and family responsibilities (Tarafdar et al., 2014).Techno-complexity describes the situation where technology users perceive technology as overly complex and feel inadequately skilled to handle it. This perception forces them to spend considerable time and effort learning to use the technology effectively, which can lead to frustration and stress due to the perceived inadequacy of their skills (Tarafdar et al., 2014).

Role stress is based on role theory. Role is described as behavior expected of an individual in a social setting with specific position which the behavior will define their role in a relation (APA, n.d.). Expectation of individuals that contradict, ambiguous, or overload will cause role stress (Tarafdar et al., 2007; Örtqvist & Wincent, 2006; Rizzo et al., 1970). Role stress is defined as anything that is related with the role in an organization which has destructive consequences to individuals (Kahn & Quinn, 1970 cited in Conley & You, 2009). Role stress became a set of expectations, tasks, and responsibilities that will be affected and help to define their role (Katz & Kahn, 1978 cited in Pecino et al., 2019). Role stress conceptualized as a consequence of different characteristic perceptions of the role with the real achievement of individuals that perform the role (Lambert & Lambert, 2001).

Örtqvist and Wincent (2006) define role stress into three aspects, role conflict, role overload, and role ambiguity. Role conflict is incompatibility between expectation and role that could happen when an individual experienced contradict or not match with the expectation of the role with bad communication from the role demand. Role overload is characterized by the commitment and responsibilities to fulfil the role until an individual feel too much role with limited time, energy, or resources to perform all of the roles (Hindin, 2007). Role ambiguity could happen when an individual feel has no clarity about expectation of role senders with the uncertainty role about what action that needs to take to fulfil the expectation of the roles (Lin & Ling, 2018).

The correlation of role stress and technostress is based on the transactional theory of stress that Lazarus (cited in Tarafdar et al., 2014) defined as a stress phenomenon that became the combination of demand that causes stress with a response of individuals according to stress. Rapid changes in technology makes information communication technology more complex which

makes individuals work longer to understand the usage of technology and cause skill discrepancies. Skill discrepancy could make individuals spend more time learning about the usage of technology and cause role stress because insufficient time and opportunity will increase role overload (Tarafdar et al., 2014).

The usage of technology is also expected to have high productivity that demands individuals to multitask with a lot of work to do with limited time that will cause role stress. Technology also makes individuals connected all the time that will make work time longer and disturb other areas of individuals. Individuals also receive too much information that will take more time to communicate. Connection all the time and too much information could cause role stress of individuals (Tarafdar et al., 2007).

H1: There is a correlation between role stress and technostress.

Work performance is characterized by individuals that perform their tasks and responsibilities. Inconsistent demand could cause role conflict that makes it ineffective to work because contrary demand. Individuals also face difficulties to work when there is uncertainty to allocate time and energy that will cause role ambiguity. Role overload is characterized based on the inadequate source to fulfil the expectation that makes it hard to show good work performance (Örtqvist & Wincent, 2006).

H2: There is a correlation between role stress and work performance

Techno-overload could trigger individuals to multitask and do their job at the same time but multitasking makes individuals in a hurry and ineffective condition to process information. Multitasking also makes inadequate time and attention to finish their job that will ruin their work performance. Unlimited connectivity will disturb the work performance because of unnecessary work disturbance. Complexity of technology makes individuals unable to improve their new skill of the technology usage, especially the implementation to cope with the complexity of technology not going well, it will decrease work performance (Tarafdar et al., 2010).

H3: There is a correlation between technostress and work performance

3. RESEARCH METHODOLOGY

The study required a target sample size of 153 participants, as determined using G*Power software. Data for this research were collected from 168 teachers across eleven senior high schools in West Jakarta. The participants were selected based on their employment status, specifically individuals who had been working for up to three months, in alignment with the work performance criteria outlined by Koopmans et al. (2014). Detailed demographic information about the participants is provided in Table 1.

The survey administered to teachers comprised three key constructs relevant to the study. The first construct, the Technostress Scale developed by Tarafdar et al. (2007), measures five dimensions of technostress: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty. This scale includes 23 items, each rated on a 5-point Likert scale, and demonstrated high reliability with a Cronbach's Alpha of $\alpha=0.866$.

The second construct, the Teacher Role Stressors Survey, assesses three dimensions of role stress and was developed by Rizzo et al. (1970) and Bacharach et al. (1990, cited in Conley & Woosley, 2000). This survey consists of 9 items, rated on a 7-point Likert scale, and exhibited a reliable Cronbach's Alpha of $\alpha=0.768$. The third construct, the Individual Work

Performance Questionnaire 1.0 (IWPQ 1.0), evaluates three dimensions of work performance with 18 items rated on a 5-point Likert scale. Developed by Koopmans et al. (2014) and adapted by Fernando (2019), this questionnaire demonstrated excellent reliability with a Cronbach's Alpha of α=0.889\alpha = 0.889α=0.889.

Prior to distributing the survey, expert judgment was employed to adapt the Technostress Scale and Teacher Role Stressors Survey into Indonesian. This adaptation involved consulting with a psychologist for expert evaluation. Following this, face validity was established through a review with a senior high school teacher in Jakarta to ensure the relevance and clarity of the survey items.

Table 1 Demographic Information

	N
Gender	
Male	62
Female	106
Age	
18-39 years	106
40-60 years	62
Marital Status	
Single	25
Married	135
Divorced	6
Educational Background	
Diploma	1
Bachelor	137
Master	30
Teaching place	
Public school	94
Private school	74
Working experience	
Less than 1 year	18
1-5 years	39
6-10 years	40
11-15 years	14
16-20 years	21
21-25 years	18
26-30 years	15
31-35 years	3
Total	168

4.   ANALYSIS AND RESULTS

In this study, data analysis was performed using IBM SPSS 26, employing Pearson and Spearman correlations, as well as multiple group comparisons. The normality of the data was assessed using the One Sample Kolmogorov-Smirnov test. The results indicated that both technostress (p = 0.200) and work performance (p = 0.200) follow normal distributions, while role stress does not (p = 0.003). The results of the correlation tests, as summarized in Table 2, reveal the following. Technostress exhibits a weak, positive, and significant correlation with role stress. However, no significant correlation is found between technostress and work performance. Role stress demonstrates a moderate, negative, and significant correlation with work performance. Additionally, role stress shows a positive and significant correlation with technostress.

Regarding the dimensions of technostress, Techno-overload, techno-invasion, techno-complexity, and techno-insecurity all show positive and significant correlations with role stress.Techno-uncertainty does not have a significant correlation with role stress. For the relationship between role stress and work performance, all dimensions of role stress exhibit negative and significant correlations with work performance. Conversely, all dimensions of work performance show negative significance with role stress. Specifically, Techno-complexity and techno-insecurity have negative, significant correlations with work performance. Techno-uncertainty shows a positive significant correlation with work performance, contrary to the negative correlations observed with other technostress dimensions. Techno-overload and techno-invasion do not exhibit significant correlations with work performance. Overall, work performance does not show any correlation with technostress.

Table 2 Result of Correlation Test

Variable or dimensions	Coefficient correlation	p	Result
Technostress – role stress	.231	.003	Significant
Techno-overload – role stress	.187	.015	Significant
Techno-invasion – role stress	.177	.021	Significant
Techno-complexity – role stress	.262	.001	Significant
Techno-insecurity – role stress	.254	.001	Significant
Techno-uncertainty – role stress	-.122	.115	Not Significant
Role ambiguity – technostress	.160	.038	Significant
Role conflict – technostress	.217	.005	Significant
Role Overload - technostress	.220	.004	Significant
Role Stress – work performance	-.384	.000	Significant
Role ambiguity – work performance	-.406	.000	Significant
Role conflict – work performance	-.290	.000	Significant
Role overload – work performance	-.268	.000	Significant
Task performance – role stress	-.387	.000	Significant
Contextual performance – role stress	-.265	.001	Significant
Counterproductive work behaviour – role stress	-.285	.000	Significant
Technostress – work performance	-.140	.071	Not Significant
Techno-overload – work performance	-.132	.088	Not Significant
Techno-invasion – work performance	-.039	.612	Not Significant
Techno-complexity – work performance	-.175	.023	Significant

Techno-insecurity – work performance	-.239	.002	Significant
Techno-uncertainty – work performance	.176	.022	Significant
Task performance – technostress	-.098	.207	Not Significant
Contextual performance – technostress	-.110	.156	Not Significant
Counterproductive work behavior - technostress	-.074	.338	Not Significant

Multiple group comparison was conducted based on data demographic gender, age, maritalstatus, working experience, and educational background. Data were analyzed using OnewayANOVA, Independent Sample T-Test, Kruskal-Wallis H Test, and Mann-Whitney U Test. The analysis revealed that there are no significant differences in technostress, role stress, or work performance when comparing different genders. However, significant differences were observed based on age, particularly in the dimensions of technostress, including techno-invasion, techno-complexity, and techno-insecurity.

Additionally, significant differences in technostress, techno-invasion, techno-complexity, and techno-insecurity were found based on marital status. These findings suggest that marital status may influence various aspects of technostress differently. Regarding work experience, significant differences were noted in technostress, techno-complexity, and techno-insecurity. This implies that individuals with varying levels of work experience may experience different levels of these specific dimensions of technostress. Conversely, no significant differences were observed in technostress, role stress, or work performance when considering educational background. For a detailed overview of the multiple group comparisons, including the analysis of differences based on demographic variables, please refer to Table 3.

Table 3 Significance Level of Multiple Group Comparison

Variable/Dimensions	Gender	Age	Marital Status	Working Experience	Educational Background
Technostress	.803	.001	.014	.042	.501
Techno-overload	.699	.243	.350	.390	.191
Techno-invasion	.511	.013	.008	.159	.881
Techno-complexity	.074	.000	.002	.001	.843
Techno-insecurity	.239	.004	.015	.010	.248
Techno-uncertainty	.445	.418	.351	.204	.883
Work Performance	.899	.737	.869	.494	.883
Role Stress	.234	.527	.244	.639	.277

5.   DISCUSSIONS, LIMITATIONS AND FUTURE DIRECTION

The findings of this study reveal a significant positive correlation between technostress and role stress, indicating that as technostress increases, role stress also rises, and conversely, as technostress decreases, role stress tends to decrease as well. This result supports Hypothesis 1 (H1) and aligns with the research by Pullins et al. (2020), which also found a positive significant relationship between technostress and role stress. Additionally, the study demonstrates a significant negative correlation between role stress and work performance.

This means that an increase in role stress is associated with a decrease in work performance, and vice versa. This finding supports Hypothesis 2 (H2) and is consistent with Akgunduz's (2015) research, which identified a negative significant correlation between role ambiguity and role conflict with work performance.

Conversely, the study found no significant correlation between technostress and work performance, which does not support Hypothesis 3 (H3). This suggests that, despite the relationship between technostress and role stress, technostress itself does not directly impact work performance.Further analysis of the dimensions of technostress reveals that techno-complexity and techno-insecurity are negatively and significantly correlated with work performance. Specifically, higher levels of techno-complexity and techno-insecurity are associated with lower work performance, and vice versa. These results corroborate the findings of Li & Wang (2020), who also reported negative significant correlations between techno-complexity and techno-insecurity with work performance.

Previous studies show there are significant differences of technostress based on gender, age, working experience, marital status, and educational background (Marchiori et al., 2018; Syvanen et al., 2016; Krishnan, 2017; La Torre et al., 2020). According to Marchiori et al. (2018), men typically exhibit higher levels of technostress compared to women. However, this study did not find significant differences in technostress levels based on gender, which contrasts with their findings. Marchiori et al. (2018) also identified significant differences in techno-complexity between participants aged 39 years and older versus those younger than 39 years. In contrast, this study found significant differences in technostress based on age, particularly in the dimensions of techno-invasion, techno-complexity, and techno-insecurity. Participants aged 39 years and younger reported higher levels of technostress, techno-invasion, techno-complexity, and techno-insecurity compared to those older than 39 years. This discrepancy may be attributed to the fact that younger individuals, who are typically more tech-savvy, may have a greater familiarity with and higher engagement in information and communication technologies, leading to different patterns of technostress compared to their older counterparts.

Previous research by Syvanen et al. (2016) indicates that teachers with fewer than 15 years of experience tend to have lower levels of technostress compared to those with up to 15 years of experience. Similarly, Marchiori et al. (2018) found significant differences in techno-complexity based on years of working experience. These findings are supported by the results of the current study, which reveal significant differences in technostress, particularly in the dimensions of techno-complexity and techno-insecurity. Specifically, this study shows that teachers with fewer than 15 years of experience report lower levels of technostress, techno-complexity, and techno-insecurity compared to those with up to 15 years of experience. This observation aligns with the findings of Syvanen et al. (2016) and Marchiori et al. (2018). The significant differences observed based on working experience may be partly due to the age factor. Individuals with more work experience are generally older, which supports the earlier finding that younger participants (those below 39 years) are often more tech-savvy compared to older participants (those 39 years and older). This suggests that younger teachers might be better at managing technostress and adapting to technological complexities, reflecting their higher familiarity with information and communication technologies.

Krishnan (2017) reported significant differences in technostress based on educational background. However, the results of this study indicate no significant differences in technostress related to educational background, which contrasts with Krishnan's findings. This result is consistent with the research by Marchiori et al. (2018), which also found no significant differences in technostress based on educational background. In terms of marital status, La Torre et al. (2020) identified significant differences in techno-complexity. This study supports and extends this finding by showing that technostress—specifically dimensions such as techno-invasion, techno-complexity, and techno-insecurity—varies significantly based on marital status.

The data suggest that single participants generally experience lower levels of technostress compared to their married counterparts. This implies that marital status may influence the experience and management of technostress, with married individuals potentially facing greater challenges in managing technostress compared to single individuals.

This study has several limitations that should be considered. First, the data collected were limited in scope and were confined to West Jakarta due to challenges in obtaining permissions. Future research could address this limitation by expanding the study to a broader geographical area and including different educational levels, such as junior high or primary schools, to enhance the generalizability of the findings. Second, the study employed only survey methods with a correlational approach. Future research might benefit from incorporating additional methodologies, such as mixed methods, interviews, or multivariate analyses, to provide a more comprehensive understanding of the relationships between technostress, role stress, and work performance. Third, the research did not gather detailed information on the usage of technology, such as the duration of technology use or the specific applications utilized for work. Prolonged use of technology can contribute to burnout (Yener et al., 2020), which was not examined in this study. Future research could consider including burnout as an additional variable to explore its impact and interactions with technostress and work performance.

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